ABSTRACT:

In this research, the time-dependent changes induced in charge characteristics of phosphoric acid and lime treated quartz-rich kaolinitic soil were investigated. Also, in order to study the relationship between the exchange capacity and the pore water chemistry, pH measurements was performed on cured samples. Based on the collected data, it was found that the pH of stabilized soils showed a tendency for reaching soil's natural pH with increasing curing time. In addition, the increase in number of broken bonds around the edges of soil particles and also the formation of cementitious compounds that acquired negative charges contributed to achieving higher CECp values at longer curing periods. From engineering point of view, the lime treated samples revealed the highest degree of improvement with an approximately 16-fold strength increase in comparison to the natural soil over an 8 months curing period.